29. (New) A device for hearing evaluation of a subject comprising:

means for repeatedly delivering an auditory stimulus;

means for sampling an EEG response to said stimulus; and

means for detecting when non-physiological noise is associated with said EEG response.

30. (New) The device according to claim 29, further comprising means for indicating when said non-physiological noise has been detected.

31. (New) A device for hearing evaluation of a subject comprising:

means for repeatedly delivering an auditory stimulus;

means for sampling an EEG response to said stimulus; and

means for detecting when non-physiological noise is associated with said EEG response, for automatically determining the amount of said non-physiological noise, and for automatically determining when said amount is excessive relative to a threshold.

a' cont

32. (New) The device according to claim 31, wherein said threshold is derived from normative data.

33. (New) A device for hearing evaluation of a subject comprising:

means for repeatedly delivering an auditory stimulus;

means for sampling an EEG response to said stimulus, said EEG response including a noise component;

means for determining the polarity bias of said noise component; and

means for detecting the degree of polarity bias in said noise component, and for determining when said bias is excessive relative to a threshold.

34. (New) The device according to claim 33, wherein said threshold is derived from normative data.

35. (New) A device for hearing evaluation of a subject comprising:

means for repeatedly delivering an auditory stimulus;

means for sampling an EEG response to said stimulus;

and means for detecting the ambient acoustic noise associated with said EEG response, for determining the signal energy of said ambient acoustic noise, and for determining if said signal energy is excessive relative to a threshold.

36. (New) The device according to claim 35, where the means for detecting the ambient acoustic noise is a microphone.

37. (New) The device according to claim 36, where the means for determining if the signal energy associated with the ambient acoustic noise is excessive relative to a threshold operates by taking samples of the ambient acoustic noise at a time that interferes with the delivery of the stimulus.

38. (New) The device according to claim 37, where the means for determining if the signal energy associated with the ambient acoustic noise is excessive relative to a threshold operates by taking samples of the ambient acoustic noise both before and during the time that the auditory stimulus is delivered.

39. (New) The device according to claim 38, where the means for determining if the signal energy associated with the ambient acoustic noise is excessive relative to a threshold operates by analyzing a weighted energy sum of said samples.

40. (New) A device for hearing evaluation of a subject comprising:

means for repeatedly delivering an auditory stimulus;

means for sampling an EEG response to said stimulus, said EEG response including a noise component;

means for detecting the magnitude of said noise component;

means for determining the polarity bias of said noise component;

means for determining when adverse evaluation conditions are present, based upon both said noise magnitude and said noise polarity bias.

41. (New) The device according to claim 28, 29, 31, 33, 35, or 40, further comprising means for determining the presence of an ABR waveform.

42. (New) A method for hearing evaluation of a subject, comprising the steps of repeatedly delivering an auditory stimulus;

measuring the EEG response to said stimulus;

detecting the noise associated with said EEG response;

automatically detecting the amount of said noise; and

automatically determining that said amount is excessive relative to a threshold.

43. (New) The method according to claim 42, wherein automatically determining that said noise amount is excessive relative to a threshold comprises computing a composite signal noise variance.

44. (New) The method according to claim 43, wherein automatically determining that said noise amount is excessive relative to a threshold further comprises comparing the composite signal noise variance to a predetermined threshold, and determining that the composite signal noise variance is greater than said threshold.

45. (New) The method according to claim 44, further comprising the step of pausing the testing in response to determining that said noise amount is excessive relative

to a threshold.

46. (New) The method according to claim 45, further comprising the step of determining if said EEG response contains an ABR waveform.

47. (New) A method for hearing evaluation of a subject, comprising the steps of

repeatedly delivering an auditory stimulus;

measuring EEG responses to said stimulus, said EEG responses having amplitudes;

detecting noise associated with said EEG responses;

determining a degree of polarity bias in said noise; and

determining when said bias is excessive relative to a threshold.

a' cont

48. (New) The method according to claim 47, whereby determining when said polarity bias is excessive relative to a threshold comprises:

digitizing said EEG response;

transforming said digitized EEG response into a series of binary numbers corresponding to the polarity of the amplitude of said EEG response;

transforming said binary numbers into an array of polarity sums;

determining the bias in said array of polarity sums; and

comparing said bias to a predetermined threshold.

49. (New) The method according to claim 47, whereby determining when said polarity bias is excessive relative to a threshold comprises:

determining the difference between the mean and the median amplitude in said EEG responses; and

comparing said difference to a predetermined threshold.

50. (New) The method according to claim 47, further comprising the step of pausing the testing in response to detecting excessive levels of polarity bias in said noise.

51. (New) The method according to claim 47, further comprising the step of determining if said EEG response contains an ABR waveform.

52. (New) A method for hearing evaluation of a subject, comprising the steps of

repeatedly delivering an auditory stimulus;

measuring EEG response to said stimulus;

detecting the noise associated with said EEG response;

determining the amount of said noise;

determining the degree of polarity bias in said noise;

determining when adverse evaluation conditions are present, based upon both said noise amount and said noise polarity bias.

a' cont

53. (New) A method for hearing evaluation of a subject which comprises the steps of

repeatedly delivering an auditory stimulus to a subject;

measuring an EEG response to the stimulus said response having a amplitude polarity at each point in time;

digitizing said EEG response;

transforming said digitized EEG response into a series of binary numbers corresponding to the polarity of the amplitude of said EEG response;

transforming said binary numbers into an array of polarity sums;

detecting the noise associated with said EEG response;

determining the amount of said noise;

automatically detecting when said amount is excessive relative to a threshold;

accounting for any excessive amounts of said noise; and

determining if an EEG response contains an ABR waveform by comparing the array of polarity sums against normative data.

54. (New) The method according to claim 53, wherein the step of accounting for excessive amounts of said noise comprises pausing the evaluation.

55. (New) The method according to claim 53, wherein the step of accounting for excessive amounts of said noise comprises rejecting a portion of said array of polarity sums.

56. (New) A method of evaluation for hearing loss which comprises the steps of repeatedly delivering an auditory stimulus to a subject;

measuring an EEG response to the stimulus said response having an amplitude polarity at each point in time;

digitizing said EEG response;

transforming said digitized EEG response into a series of binary numbers corresponding to the polarity of the amplitude of said EEG response;

transforming said binary numbers into an array of polarity sums;

detecting the noise associated with said EEG response;

detecting the degree of polarity bias in said noise;

determining when said bias is excessive relative to a threshold;

accounting for any excessive bias; and

determining if an EEG response contains an ABR waveform by comparing the array of polarity sums against normative data.

57. (New) The method according to claim 56, wherein the step of accounting for any

excessive polarity bias comprises pausing the evaluation.

58. (New) The method according to claim 56, wherein the step of accounting for any excessive polarity bias comprises rejecting a portion of said array of polarity sums.

59. (New) A method for evaluation for hearing loss comprising the steps of

repeatedly delivering an auditory stimulus to a subject;

measuring an EEG response to the stimulus;

detecting the ambient acoustic noise associated with said EEG response;

determining the signal energy of said ambient acoustic noise; and

determining if said signal energy exceeds a predetermined threshold.

a' cont

60. (New) The method according to claim 59, wherein the ambient acoustic noise is sampled both before and during the time the auditory stimulus is delivered.

61. (New) The method according to claim 59, wherein the ambient acoustic noise is sampled before the auditory stimulus is delivered.

62. (New) The method according to claim 59, wherein the ambient acoustic noise is sampled during the time the auditory stimulus is delivered.

63. (New) The method according to claim 60, wherein the samples are taken during three, approximately 20 millisecond windows of time.

64. (New) A system for hearing evaluation of a subject comprising:

a transducer having an audible click output stimulus;

an electrode system adapted to detect an EEG response to said stimulus; and

a processor, responsive to said EEG response, having

means for sampling the EEG response;

means for processing the sampled EEG response and identifying therein a noise component and an evoked ABR component; and

means for automatically determining when said noise component contains a non-physiological component.

65. (New) A system for hearing evaluation of a subject comprising:

a transducer having an audible click output stimulus;

an electrode system adapted to detect an EEG response to said stimulus; and

a processor, responsive to said EEG response, having

means for sampling the EEG response;

means for processing the sampled EEG response and identifying therein a noise component and an evoked ABR component; and

means for automatically determining when said noise component is excessive relative to a threshold.

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